TO:	Mr. Carl P. Garvey and Mr. M. Brendan Mullen (Revitalizing Auto Communities Environmental Response Trust) Mr. Alan J. Knauf and Ms. Linda R. Shaw (Knauf Shaw LLP)
FROM:	Katherine Lasseter, Jason Dittman, Jamie Combes, and Alice England (TIG Environmental) 443 North Franklin Street, Suite 220, Syracuse, NY 13204
SUBJECT:	**Evidence Summary Memorandum for Solvents and Petroleum Site**
DATE:	October 2, 2019

1. Introduction

Revitalizing Auto Communities Environmental Response (RACER) Trust and Knauf Shaw LLP (Knauf Shaw) contacted TIG Environmental[1] to provide consulting services regarding potentially responsible party (PRP) identification and investigation, sampling and data analysis, and expert witness testimony to support RACER Trust and Knauf Shaw during litigation proceedings stemming from a Civil Action No.: 5:18-cv-1267 [DNH/ATB] filed on October 26, 2018 (the Complaint) (RACER 2018).

In the Complaint, RACER Trust, by its attorneys, Knauf Shaw LLP, brings claims for cost recovery and contribution under Sections 107(a) and 113(f) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 U.S.C. 9607(a) and 9613(f), inter alia, against parties (Defendants) operating in or around the Ley Creek Watershed Site (Study Area) in Onondaga County, New York. The Complaint asserts that the Defendants are responsible to contribute to the cost of past and future investigations to address contamination in and around the Study Area.

The Study Area consists of the GM-Inland Fisher Guide Facility (GM-IFG) Sub-Site Operable Unit 1 (OU-1), the expanded OU-2 area (Ley Creek from Townline Road west to Route 11, including creek banks and limited floodplain and hotspot areas), and tributaries upstream of Townline Road bridge. As defined in the Record of Decision (ROD) for OU-2, the identified contaminants of concern (COCs) in the Study Area are polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), chromium, copper, lead, nickel, and zinc. PCBs are the predominant contaminants in Ley Creek sediments (NYSDEC and EPA 2015).

[1] TIG Environmental is a member of The Intelligence Group, LLC.

Evidence Summary Memorandum for Solvents and Petroleum Site

In this evidence summary memorandum (ESM), TIG Environmental reviewed evidence gathered by RACER Trust and Knauf Shaw to evaluate the following for each Defendant's site:

- Documented and suspected PCB usage at the Defendant's site
- The existence of PCB-containing electrical equipment or electrical substations (utility- or Defendant-owned) on Defendant's site
- Whether pathways exist between the Defendant's site and the Ley Creek watershed (defined as Ley Creek and its tributaries)

Sections 2 through 4 summarize the available information on Defendant operations related, or potentially related, to PCB usage; detections of contaminants at or related to the Defendant site; permits, waste handling, spills, and/or releases at each Defendant's site; whether pathways from the Site to Ley Creek watershed can be determined; data gaps; and proposed sampling to address identified data gaps. Defendant information, site ownership information, and dates of operation for the Defendant's site are available in Knauf Shaw's site dossier (Knauf Shaw Solvents and Petroleum Site Dossier).

2. Description of Site Operations Related to PCBs

The Solvents and Petroleum Site, located at 1401 and 1405 Brewerton Rd, Syracuse, NY is owned and operated by Solvents and Petroleum Services, Inc. (SPS) (Knauf Shaw Solvents and Petroleum Site Dossier, 1). The north edge of the Site is bordered by Old Ley Creek, a tributary of Ley Creek.

From approximately 1945 to 1977, the Site was owned by Buckley Petroleum, Inc., which operated a gasoline station at the Site from the 1940s to the early 1970s with several gasoline underground storage tanks (USTs) (Knauf Shaw Solvents and Petroleum Site Dossier, 1–2). The USTs were reported removed from the Site at the time of the gas station closure in the early 1970s (Knauf Shaw Solvents and Petroleum Site Dossier, 1). A car repair shop and car wash operated at the Site at some point prior to SPS ownership (EPA 2010, 3). There is little information about these operations on the Site. Automotive fueling, oil, and repair activities are not generally associated with PCBs (Erickson and Kaley 2011, 11), but PCB congeners have been detected in motor oil, transmission fluid, and antifreeze ranging from 0.018 to 116 micrograms/kilogram (µg/kg) (0.018 to 116 parts per billion [ppb]) (City of Spokane 2015, 6, 15, 17–18, 44–45).

Since 1977, SPS has operated a distribution center for virgin solvents and a hazardous waste storage facility for spent solvents, other bulk chemicals, and gasoline. The facility in Syracuse is an intermediate storage facility where SPS collects waste from clients then ships it to other offsite locations for permanent disposal (EPA 2010, 2). According to the Site dossier, SPS removed 2,293.5 kg of PCB waste (waste code B004[2]) from the Site to an unknown location at an unknown date (Knauf Shaw Solvents and Petroleum Site (Knauf Shaw Solvents and Petroleum Site Dossier, 1–2). Based on aerial imagery, another building and a tank farm was added to the southwestern portion of the Site sometime between 2013 and 2015, with the tank farm located approximately 300 ft from Ley Creek (Knauf Shaw Solvents and Petroleum Exhibit C, 11;

[2] According to 6 CRR-NY 371.4 (e), B004 waste includes PCB articles containing 50 ppm or greater of PCBs, but less than 500 ppm PCBs, excluding small capacitors. This includes oil-filled electrical equipment whose PCB concentration is unknown, except for circuit breakers, reclosers, and cable (6 CRR-NY 371.4 [e]).

Google Earth 2015). Chemicals stored on the Site include petroleum and chlorinated solvents; as of 2019 SPS is not listed as a facility that handles PCBs (Knauf Shaw Solvents and Petroleum Exhibit A, 125).

The Site's Hazardous Waste Permit through New York State Department of Environmental Conservation (NYSDEC) in 2012 covers storage of hazardous solvent waste (waste codes in F and D categories [3]) received from clients that perform activities such as semi-conductor manufacturing, dry cleaning, auto repair, painting, printing and metal machining, and fabrication (FOIL199847 at FOIL199902). PCBs were associated with printing (inks and thermographic or xerographic copying) and with metal fabrication processes (hydraulic, quenching, or cutting fluids) (Erickson and Kaley 2011, 10–12), If waste from these activities was accepted onsite prior to the PCB ban in 1979,[4] during the five-year phase-out period, or afterward when clients were disposing of PCB materials, then it is possible SPS accepted PCB-containing waste. No PCB waste codes[5] are currently documented in the permit. With operations beginning in 1977, the same year that Monsanto ceased production of PCB products (Erickson and Kaley 2011, 2), and shortly before the PCB ban came into effect in 1979, it is possible that SPS used or handled PCBs on the Site during those first two years of operation and potentially later during the PCB phase-out period.

Records indicate a transformer in a building constructed sometime between November 2013 and May 2015 (FOIL260591; Knauf Shaw Solvents and Petroleum Exhibit C, 11; Google Earth 2015). This newer transformer likely would not be associated with PCBs because it was installed more recently, much later than the period in which PCBs were used in transformers. There is no information available in the reviewed documents with regard to electricity generation or transformer use during the earlier operating period.

PCB contamination was documented at Old Ley Creek[6] as early as 1987, and PCB levels still pose a significant threat to fish and wildlife (NYSDEC 2019a). The PCB detections in groundwater and sediments in Old Ley Creek are likely attributable, at least in part, to activities at the former Town of Salina Landfill[7] (Salina Landfill), which borders the Site to the north (Knauf Shaw Solvents and Petroleum Exhibit B, 7, 21). The Salina Landfill is known to have accepted domestic, commercial, and industrial hazardous wastes between the 1950s and the late 1970s (NYSDEC 2019b, 2), including PCB-contaminated wastes and dredged sediments from Ley Creek (EPA 2016, 9).

[3] EPA waste codes for characteristic hazardous wastes based on ignitability, corrosivity, reactivity, and toxicity (D list) and hazardous waste from nonspecific sources (F list) are defined in Title 40 of the Code of Federal Regulations, Subparts C and D, respectively (40 CFR 261.20–261.24, 40 CFR 261.31). As of 2012, SPS accepted waste codes including spent halogenated or nonhalogenated solvents (F001–F005), ignitable waste (D001), corrosive waste (D002), reactive waste (D003), characteristic toxic waste for metals (D004-011), and aliphatic and aromatic solvents (D018, D019, D021-D030, D032-043) (FOIL199847 at FOIL199902).

[4] On May 31, 1979, the manufacture of PCBs was banned from non-enclosed uses, effective July 2, 1979 (EPA 1979a). Although PCBs were banned for use in 1979, they did not immediately disappear and are still present throughout the environment in trace quantities. As a result of the EPA-authorized five-year phase-out period and the continued use of these banned materials (EPA 1979b), some non-enclosed sources may have continued to retain old PCB-containing material and use of enclosed sources such as transformers may have continued beyond 1984 (EPA 1976, 273; Erickson and Kaley 2011, 2–3).

[5] In New York State, waste is classified according to 6 CRR-NY 371.4 (e). Wastes classified as B001–B007 contain polychlorinated biphenyls (PCBs) (6 CRR-NY 371.4 [e]).

[6] The Old Ley Creek Channel is listed under New York State Superfund Site #734074 (NYSDEC 2019a).

[7] The Salina Town Landfill is listed under New York State Superfund Site #734036 (NYSDEC 2019b).

In 1997, NYSDEC detected elevated PCBs (along with volatile organic compounds [VOCs], semivolatile organic compounds [SVOCs], and polycyclic aromatic hydrocarbons [PAHs]) in sediment samples from Old Ley Creek in three locations adjacent to and downstream of the Site (Knauf Shaw Solvents and Petroleum Exhibit B, 10, 18). PCB Aroclors[8] were detected at the following maximum concentrations: 1016 at 230 milligrams per kilogram (mg/kg) (230 parts per million [ppm]), 1242 at 6.3 mg/kg (6.3 ppm), 1248 at 8.0 mg/kg (8.0 ppm), 1254 at 2.1 mg/kg (2.1 ppm), and 1260 at 7.4 mg/kg (7.4 ppm) (Knauf Shaw Solvents and Petroleum Exhibit B, 18, 26). The samples were collected as part of the remedial program for the Onondaga Lake National Priorities List Site (NYSDEC 1997). During further investigation into the Lower Ley Creek portion of the Onondaga Lake Superfund Site, PCB Aroclors 1242, 1248, 1254, and 1260 were detected in sediment and soil samples in and around Old Ley Creek in 2010 (EPA 2014, 15, 17, 18). PCB Aroclors were detected in soils on the banks of Old Ley Creek at the following maximum concentrations: 1248 at 380 mg/kg (380 ppm), 1254 at 100 mg/kg (100 ppm), and 1260 at 1.1 mg/kg (1.1 ppm) (EPA 2014, 16, 63, 70–72). In the sediments of Old Ley Creek PCB Aroclors were detected at the following maximum concentrations: 1242 at 56 mg/kg (56 ppm), 1248 at 31 mg/kg (31 ppm), 1254 at 13 mg/kg (13 ppm) (EPA 2014, 17, 63, 73–74). PCBs were detected during groundwater monitoring along the site boundary in 2015 as part of a site assessment of the Salina Landfill, with Aroclors 1242 and 1248 at concentrations up to 3.1 micrograms per liter (µg/L) (3.1 parts per billion [ppb]) and 5.4 µg/L (5.4 ppb), respectively (EPA 2016, 20). However, the Site itself has not been investigated specifically for PCB contamination.

2.1 Discharge Permits, Waste Handling, and/or Spills at the Site

2.1.1 Discharge Permits

SPS appears to have an industrial wastewater permit starting in at least 2017, based on an invoice date, but no further information about the permit is available in the provided documents (FOIL260589).

2.1.2 Spills Related to PCBs

No PCB-related spills are documented for the Site. Two minor solvent spills have been on record since 1985, and SPS made efforts to clean up the spills. Because of these spills, the Site has been under investigation with regard to groundwater contamination from VOCs, specifically chlorinated solvents and petroleum-related compounds (benzene, toluene, ethylbenzene, and xylenes) (Knauf Shaw Solvents and Petroleum Site Dossier, 2; FOIL197777 at FOIL197790, 821).

2.2 PCB Discharges to Ley Creek or Tributaries

This section discusses the documented or potential discharge pathways of PCBs from the Site, with emphasis on discharges to Ley Creek or its tributaries.

[8] Beginning in 1935, Swann Chemical Company, followed by the Monsanto Company, produced commercially available PCB-containing goods in a line of products known as “Aroclors.” Each of the 10 common PCB Aroclor mixtures are generally associated with certain signatures of PCB congeners (there are 209 PCB congeners) (Erickson and Kaley 2011, 2–3). The style of reporting analytical data for PCBs varies in reviewed documentation. Results may be reported as individual Aroclors and/or congeners, as a sum of all or some of these analytes, or simply as “PCBs.” For purposes of this memorandum, TIG Environmental will state “total PCBs” when the source document has reported analytical results as either “PCBs” or “total PCBs.” This is presumed to represent the sum of PCB Aroclors or congeners. TIG Environmental will report Aroclor- or congener-specific data where that information is available.

2.2.1 Direct Discharge

No information is available to characterize potential direct discharges from the Site to Ley Creek or its tributaries.

2.2.2 Sanitary Sewer

No information is available to characterize potential discharges from the Site to the Ley Creek via sanitary sewers.

2.2.3 Storm Sewer

No information is available to characterize potential discharges from the Site to the Ley Creek via storm sewers.

2.2.4 Runoff

This section discusses the documented or potential PCB-containing discharges from the Site to Ley Creek or its tributaries via stormwater runoff.

- A geological cross section shows the Site's surface sloping toward Old Ley Creek (Knauf Shaw Solvents and Petroleum Exhibit B, 19); therefore, runoff likely drains to Old Ley Creek and a potential for PCB-containing discharges from the Site to Ley Creek via stormwater runoff exists.

2.2.5 Groundwater

This section discusses the documented or potential PCB-containing discharges from the Site to Ley Creek or its tributaries via groundwater.

- Groundwater at the Site flows to the north, discharging to Old Ley Creek which flows to Ley Creek (Knauf Shaw Solvents and Petroleum Exhibit B, 7, 20). Site groundwater has not been sampled for PCBs; therefore, no information is available to characterize potential discharges from the Site to the Ley Creek via storm sewers.

3. Data Gaps

TIG Environmental has identified the following data gaps that would increase the understanding of how PCBs were used onsite and/or released from the Site.

- According to the Site dossier, SPS disposed of 2,293.5 kg of B004 waste (PCB-containing equipment), but no supporting information is available in the provided documents with regard to the date or material disposed.
    - Recommendation: Request Hazardous Waste Generator Report/Waste Manifests for SPS (NYD013277454) from Knauf Shaw.
- Little information is provided on Site operations prior to 1977. According to the EPA's entry for the Site in its database of hazardous waste cleanup sites, a car repair shop and car wash operated sometime prior to 1977 (EPA 2010, 3), and according to the site dossier, a gasoline station was also in operation.

In order to fully determine the extent of operations during the height of PCB usage, more details are needed regarding site operations prior to SPS ownership in 1977.

- No information is available in the reviewed documents regarding historical wastewater treatment or stormwater runoff on the Site. As a distribution center where chemicals are transferred to and from storage tanks, there is potential for spills onto the concrete pads and subsequent runoff during storm events.

4. Proposed Sampling to Assess Contributions to the Study Area

Because of the data gaps identified in Section 3, TIG Environmental proposes additional sampling at the Site, as described below. The sampling locations should be analyzed for PCB Aroclors (EPA Method 8082A), PCB congeners (EPA Method 1668C), total organic carbon (Lloyd Kahn method), grain size (ASTM D422), and total solids (ASTM D2216-98). In addition to those parameters, TIG Environmental may also propose sampling for particular contaminant classes (that is, metals, PAHs, VOCs, and SVOCs), depending on the nature of operations surrounding a particular sampling location.

4.1 Soil

One soil sample should be collected near the waste storage area at the Site. The sample should be analyzed for PCB congeners, PAHs, and metals.

4.2 Sediment

Two sediment samples – one immediately adjacent to the Site and one downstream of the Site – should be collected along Old Ley Creek and analyzed for PCB congeners, PAHs and metals.

5. References

This ESM was prepared using the evidentiary materials listed below and provided with this document.

40 CFR (Code of Federal regulations) 261.20–261.24. Title 40 Part 261.20–261.24: Characteristics of Hazardous Waste.

40 CFR 261.31. Title 40 Part 261.31: Hazardous Waste from Nonspecific Sources.

6 CRR-NY (Codes, Rules and Regulations of the State of New York) 371.4. Title 6 Part 371.4 (e): Wastes containing polychlorinated biphenyls (PCBs).

City of Spokane. 2015. *PCBs in Municipal Products*. Spokane: City of Spokane.

EPA (U.S. Environmental Protection Agency). 1976. *PCBs in The United States Industrial Use and Environmental Distribution*. Washington, DC: EPA.

EPA (U.S. Environmental Protection Agency). 1979a. *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.* Federal Register 40 CFR Part 761.

EPA (U.S. Environmental Protection Agency). 1979b. *EPA Bans PCB Manufacture; Phases Out Uses.*

EPA (U.S. Environmental Protection Agency). 2010. Solvents and Petroleum Incorporated Corrective Action Site, Syracuse, New York, EPA ID NYD013277454. Last Updated August 2010. Accessed July 29, 1019. https://www.epa.gov/hwcorrectiveactionsites/hazardous-waste-cleanup-solvents-petroleum-incorporated-syracuse-new-york.

Evidence Summary Memorandum for Solvents and Petroleum Site

EPA (U.S. Environmental Protection Agency). 2014. *Record of Decision, Lower Ley Creek Subsite of the Onondaga Lake Superfund Site*. Syracuse/Salina: EPA.

EPA (U.S. Environmental Protection Agency). 2016. *First Five-Year Review Report, Onondaga Lake Superfund Site, Salina Landfill Subsite, Onondaga County, New York*. Accessed July 29, 2019. https://semspub.epa.gov/work/02/420058.pdf.

Erickson, Mitchell D., and Robert G. Kaley II. "Applications of Polychlorinated Biphenyls." *Environmental Science and Pollution Research* (2011) 18: 135–151.

FOIL197777. Clough, Harbour & Associates, LLP. 2001. *Corrective Measures Study for Solvents and Petroleum Service, Inc*. Salina: Clough, Harbour & Associates. Source File: CHA_2001_Corrective_Measures_Study.

FOIL199847. NYSDEC (New York State Department of Environmental Conservation). 6NYCRR Part 373 Hazardous Waste Permit: Solvents and Petroleum Service, Inc. Source File: SPS_Draft_Permit_2012-06-25.

FOIL260589. Onondaga County, invoice to Solvents and Petroleum Service, Inc. for Industrial Wastewater Permit Fee, June 6, 2017. Source File: 2017.06.06_Industrial Wastewater Discharge Permit Fee.

FOIL260591. Solvents and Petroleum Building 4 Layout Plan. Source File: SPS Building 4 Layout.

Google Earth. 2015. "Aerial imagery of 1405 Brewerton Rd, Syracuse, New York" Map Data: Google, Digital Globe. Historical Imagery May 2015. Accessed August 7, 2019. https://www.google.com/earth/.

Knauf Shaw (Knauf Shaw LLP). 2019. *Solvents and Petroleum Site Dossier*. Rochester: Knauf Shaw.

Knauf Shaw (Knauf Shaw LLP). 2019. *Solvents and Petroleum Site Dossier Exhibit A*. Rochester: Knauf Shaw.

Knauf Shaw (Knauf Shaw LLP). 2019. *Solvents and Petroleum Site Dossier Exhibit B*. Rochester: Knauf Shaw.

Knauf Shaw (Knauf Shaw LLP). 2019. *Solvents and Petroleum Site Dossier Exhibit C*. Rochester: Knauf Shaw.

NYSDEC (New York State Department of Environmental Conservation). 1997. *Onondaga Lake NPL (National Priorities List) Site Tributary Sampling First Round Report*. Syracuse: NYSDEC.

NYSDEC (New York State Department of Environmental Conservation). 2019a. Environmental Site Remediation Database: Site Record Old Ley Creek Channel #734074. Accessed July 26, 2019. https://www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=3

NYSDEC (New York State Department of Environmental Conservation). 2019b. Environmental Site Remediation Database: Site Record Salina Town Landfill #734036. Accessed July 29, 2019. https://www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=3

NYSDEC (New York State Department of Environmental Conservation) and EPA (U.S. Environmental Protection Agency). 2015. *Record of Decision, Operable Unit 2 of the General Motors – Inland Fisher Guide.* Salina: NYSDEC and EPA.

RACER (Revitalizing Auto Communities Environmental Response). 2018. Amended Complaint Civil Action No: 5:18-cv-01267-DNH-ATB. U.S. District Court Northern District of New York.